CERTIFICATE OF COMPLIANCE

Certificate Number	UL-US-2133152-1
Report Reference	E139109-20210630
Date	1-Jun-2022
Issued to:	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN, CA 92780 United States
This is to certify that representative samples of	QQJQ2 - Power Supplies for Use with Audio/Video, Information and Communication Technology Equipment - Component See Addendum Page for Product Designation(s).
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 62368-1, 2nd Ed., Issue Date: 2014-12-01
Additional Information:	See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2133152-1
Report Reference E139109-20210630
Date 1-Jun-2022

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Model	Category Description
HRC0524S1K0N	DC/DC HV Converter
HRC0524S1K0P	DC/DC HV Converter
HRC0524S1K5N	DC/DC HV Converter
HRC0524S1K5P	DC/DC HV Converter
HRC0524S2K0N	DC/DC HV Converter
HRC0524S2K0P	DC/DC HV Converter
HRC0524S350N	DC/DC HV Converter
HRC0524S350P	DC/DC HV Converter
HRC0524S3K0N	DC/DC HV Converter
HRC0524S3K0P	DC/DC HV Converter
HRC0524S4K0N	DC/DC HV Converter
HRC0524S4K0P	DC/DC HV Converter
HRC0524S5K0N	DC/DC HV Converter
HRC0524S5K0P	DC/DC HV Converter
HRC0524S600N	DC/DC HV Converter
HRC0524S600P	DC/DC HV Converter
HRC0524S6K0N	DC/DC HV Converter
HRC0524S6K0P	DC/DC HV Converter

Bruce Mahrenholz, Director North American Certification Program

UL LLC

CERTIFICATE OF COMPLIANCE

Certificate Number	UL-CA-2127643-1
Report Reference	E139109-20210630
Date	1-Jun-2022
Issued to:	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN, CA 92780 United States
This is to certify that representative samples of	QQJQ8 - Power Supplies for Use with Audio/Video, Information and Communication Technology Equipment Certified for Canada - Component See Addendum Page for Product Designation(s). Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	CSA C22.2 NO. 62368-1-14, 2nd Ed., Issue Date: 2014-12-01
Additional Information:	See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

CERTIFICATE OF COMPLIANCE

Certificate Number UL-CA-2127643-1
Report Reference E139109-20210630
Date 1-Jun-2022

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Model	Category Description
HRC0524S1K0N	DC/DC HV Converter
HRC0524S1K0P	DC/DC HV Converter
HRC0524S1K5N	DC/DC HV Converter
HRC0524S1K5P	DC/DC HV Converter
HRC0524S2K0N	DC/DC HV Converter
HRC0524S2K0P	DC/DC HV Converter
HRC0524S350N	DC/DC HV Converter
HRC0524S350P	DC/DC HV Converter
HRC0524S3K0N	DC/DC HV Converter
HRC0524S3K0P	DC/DC HV Converter
HRC0524S4K0N	DC/DC HV Converter
HRC0524S4K0P	DC/DC HV Converter
HRC0524S5K0N	DC/DC HV Converter
HRC0524S5K0P	DC/DC HV Converter
HRC0524S600N	DC/DC HV Converter
HRC0524S600P	DC/DC HV Converter
HRC0524S6K0N	DC/DC HV Converter
HRC0524S6K0P	DC/DC HV Converter

Bruce Mahrenholz, Director North American Certification Program

UL LLC

UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed, Issued: 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Complementary CCN:	QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Product:	DC/DC HV Converter
Model:	HRC0524S4K0P, HRC0524S4K0N, HRC0524S5K0P, HRC0524S5K0N, HRC0524S6K0P, HRC0524S6K0N HRC0524S350P, HRC0524S350N, HRC0524S600P, HRC0524S600N, HRC0524S1K0P, HRC0524S1K0N, HRC0524S1K5P, HRC0524S1K5N, HRC0524S2K0P, HRC0524S2K0N, HRC0524S3K0P, HRC0524S3K0N
Rating:	Input: 24Vdc, 0.35A Output: See Model Differences for output ratings of each mode. Ratings optionally marked on unit.
Applicant Name and Address:	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared By: Lorenzo Iorio / Project Handler Reviewed By: Lucio Cinelli / Project Reviewer

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.

ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.

iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

The units are non-isolating Low Voltage DC to High Voltage DC 5 watt converters.

Model Differences

Model Output Voltage and Current:

HRC0524S4K0P: 0 to +4000V, 1.25mA
HRC0524S4K0N: 0 to -4000V, 1.25mA
HRC0524S5K0P: 0 to +5000V, 1.00mA
HRC0524S5K0N: 0 to -5000V, 1.00mA
HRC0524S6K0P: 0 to +6000V, 0.83mA
HRC0524S6K0N: 0 to -6000V, 0.83mA

Models HRC0524S350P, HRC0524S350N, HRC0524S600P, HRC0524S600N, HRC0524S1K0P, HRC0524S1K0N, HRC0524S1K5P, HRC0524S1K5N, HRC0524S2K0P, HRC0524S2K0N are similar to HRC054S series, with positive and negative output, with different output voltage range, difference of turn amounts of secondary winding of transformer T1, minor electric components located on control board and in secondary side of HV transformer T1 on power board and trace layout of power board.

Output ratings for alternate Construction models HRC0524S350P, HRC0524S350N, HRC0524S600P, HRC0524S600N, HRC0524S1K0P, HRC0524S1K0N, HRC0524S1K5P, HRC0524S1K5N, HRC0524S2K0P, HRC0524S2K0N, HRC0524S3K0P, HRC0524S3K0N:

HRC0524S350P: 0 to +350V, 14.3mA
HRC0524S350N: 0 to -350V, 14.3mA
HRC0524S600P: 0 to +600V, 8.33mA
HRC0524S600N: 0 to -600V, 8.33mA
HRC0524S1K0P: 0 to +1000V, 5mA
HRC0524S1K0N: 0 to -1000V, 5mA
HRC0524S1K5P: 0 to +1500V,3.33mA
HRC0524S1K5N: 0 to -1500V, 3.33mA
HRC0524S2K0P: 0 to +2000V, 2.5mA

HRC0524S2K0N: 0 to -2000V, 2.5mA
HRC0524S3K0P: 0 to +3000V, 1.66mA
HRC0524S3K0N: 0 to -3000V, 1.66mA

Test Item Particulars	
Classification of use by	Skilled person
Supply Connection	External Circuit - not Mains connected ES1
Supply % Tolerance	None
Supply Connection – Type	For building-in
Considered current rating of protective device as part of building or equipment installation	20 A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	other: N/A for Building-In
Class of equipment	Not classified
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	70
IP protection class	IPX0
Power Systems	N/A
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.075

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : When installed in the end product temperature at the Baseplate hotspot should be measured and temperatures should not exceed 70°C.
- The product is intended for use on the following power systems : No direct connection
- The equipment disconnect device is considered to be : N/A - To be provided as an element of the end product.
- The product was investigated to the following additional standard : EN 62368-1:2014 + A11:2017

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following output circuits are at ES3 energy levels : All Outputs, All Models
- The following output circuits are at PS1 energy levels : All Outputs, All Models
- The maximum investigated branch circuit rating is : 20 A
- The investigated Pollution Degree is : 2
- Proper bonding to the end-product main protective earthing termination is : Not required
- The following end-product enclosures are required : Electrical, Fire
- Heating test should be repeated in the end-use product.
- When installed in the end product the Baseplate hotspot should be measured and temperatures should not exceed 70°C.
- Power supply shall not be directly connected to primary power and shall derive its power from a safety isolating transformer whose secondary circuit is double/reinforced insulated from the mains or derive its power from batteries.
- The power supply outputs are not intended to be accessible to the user when installed in the end use product. Further evaluation may be necessary if its determined that the output circuits are accessible in the final installation.

Additional Information

The nameplate markings provided are considered representative of the entire series and only the output ratings may vary.

The need for the additional testing and evaluation shall be determined in the end product investigation.

4790299337.1: E1391090-A6101-CB-1-Technical Amendment-1: This is to add alternate construction models HRC0524S350P, HRC0524S350N, HRC0524S600P, HRC0524S600N, HRC0524S1K0P, HRC0524S1K0N, HRC0524S1K5P, HRC0524S1K5N, HRC0524S2K0P, HRC0524S2K0N, HRC0524S3K0P, HRC0524S3K0N. Additional tests were conducted. Report sections impacted include cover page, models and ratings, General Product Information, Energy Source Table, Critical Components, List of Tests, Testing Summary, Enclosures. Only limited tested was deemed necessary. Models HRC0524S600P, HRC0524S600N are representative of the added series of models.

Additional Standards

The product fulfills the requirements of: EN 62368-1:2014 + A11:2017, CSA CAN/CSA-C22.2 No. 62368-1 2nd Edition, Issued December 1, 2014, UL 62368-1 2nd Edition, Issued December 1, 2014, J62368-1 (2020), AS/NZS 62368.1:2018

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listee’s or Recognized companys name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
High Voltage warning	

Special Instructions to UL Representative

N/A

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	**Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.**					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
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BD1.2	**Earthing Continuity Test Exemptions – This test is not required for the following models:**					
	All models					
BD1.3	**Electric Strength Test Exemptions – This test is not required for the following models:**					
	All models					
BD1.4	**Electric Strength Test Component Exemptions – The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test.**					
	N/A					

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
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